

**TABLE 3.5–1.—Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives [Page 1 of 30]**

Resource/ Material Categories	Alternative 1		Alternative 2		Alternative 3	Alternative 4
	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
<b>Land Use</b>						
<u>Construction:</u>						
Potential Land Disturbance	None	26 to 40 ha (64 to 99 acres) for EMWMF	5 ha (12.4 acres) at Site A	0.8 ha (2 acres)	8 ha (20 acres) at Site 1	10-13 ha (24.7-32.1 acres)
		5 to 7 ha (12.4 to 17 acres) Y-12 West End Borrow Area	5 ha (12.4 acres) at Site B		5 ha (12.4 acres) at Site 2 and Site 3	
		4 ha (10 acres) Field Research Center				
		<b>Total: 35-51 ha</b>	<b>Total with No Action - Planning Basis Operations Alternative: 40-56 ha</b>	<b>Total with No Action - Planning Basis Operations Alternative: 36-52 ha</b>	<b>Total with No Action - Planning Basis Operations Alternative: 56-59 ha</b>	<b>Total with No Action - Planning Basis Operations Alternative: 45-64 ha</b>
<u>Operation:</u>						
Potential Permanent Land Requirement	No change from existing 2,136 ha (5,279 acres) comprising Y-12 Site	9 to 18 ha (22 to 44 acres) for EMWMF	4 ha (10 acres) at Site A	0.5 ha (1.2 acres)	4 ha (10 acres) at Sites 1, 2 or 3	8 ha (20 acres)
		5 to 7 ha (12.4 to 17 acres) for Borrow Area	4 ha (10 acres) at Site B			
		< 4 ha (<10 acres) Field Research Center				
		<b>Total: 18-29 ha</b>	<b>Total with No Action - Planning Basis Operations Alternative:  22-33 ha</b>	<b>Total with No Action - Planning Basis Operations Alternative:  18.5-29.5 ha</b>	<b>Total with No Action - Planning Basis Operations Alternative:  22-33 ha</b>	<b>Total with No Action - Planning Basis Operations Alternative:  26-37 ha</b>

**TABLE 3.5–1.—Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives [Page 2 of 30]**

Resource/ Material Categories	Alternative 1		Alternative 2		Alternative 3	Alternative 4
	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
<b>Transportation</b>						
<u>Construction:</u>						
Additional Vehicles/Day	None	75 for EMWMF	165 worker vehicles at Site A and Site B; 8 Material Trucks	165 worker vehicles; 3 Material Trucks	157 worker vehicles at Site 1, Site 2, Site 3; 5 Material Trucks	335
		< 10 for Field Research Center				
		<b>Total: 85 vehicles</b>	<b>Total with No Action - Planning Basis Operations Alternative: 258 vehicles</b>	<b>Total with No Action - Planning Basis Operations Alternative: 253 vehicles</b>	<b>Total with No Action - Planning Basis Operations Alternative: 247 vehicles</b>	<b>Total with No Action - Planning Basis Operations Alternative: 420 vehicles</b>
<u>Operation:</u>						
Additional Vehicles/Day	No change from average daily traffic volume of 32,100	28 for EMWMF	No additional worker traffic	No additional worker traffic	No additional worker traffic	No additional worker traffic
		6 for Field Research Center	3,000 additional truck trips on site to relocate stored HEU to new facility	3,000 additional truck trips on site to relocate stored HEU to new facility		
		<b>Total: 34 vehicles</b>	<b>Total with No Action - Planning Basis Operations Alternative: 34 vehicles</b>	<b>Total with No Action - Planning Basis Operations Alternative: 34 vehicles</b>	<b>Total with No Action - Planning Basis Operations Alternative: 34 vehicles</b>	<b>Total with No Action - Planning Basis Operations Alternative: 34 vehicles</b>

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Resource/ Material Categories	Alternative 1		Alternative 2		Alternative 3	Alternative 4
	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
Transportation Risk	The risk associated with radiological material transportation would be less than 0.1 fatality per year.	The risk associated with radiological material transportation would be less than 0.1 fatality per year.	The risk associated with radiological material transportation would be less than 0.1 fatality per year.	The risk associated with radiological material transportation would be less than 0.1 fatality per year.	No additional risk from No Action - Status Quo Alternative associated with radiological material transportation under this alternative.	The risk associated with radiological material transportation would be less than 0.1 fatality per year.
	The risk associated with radiological waste transportation would be less than 0.1 fatality per year.	The risk associated with radiological waste transportation would be less than 0.1 fatality per year.	The risk associated with radiological waste transportation would be less than 0.1 fatality per year. The risk associated with the one-time on site transport of stored HEU to new facility would be less than 0.001 fatality.	The risk associated with radiological waste transportation would be less than 0.1 fatality per year. The risk associated with the one-time on site transport of stored HEU to new facility would be less than 0.001 fatality.	No additional risk from No Action - Status Quo Alternative with radiological waste transportation under this alternative.	The risk associated with radiological waste transportation would be less than 0.1 fatality per year.
<b>Socioeconomics</b>						
<u>Construction:</u>	No new construction	100 for EMWMF	220 for Site A and Site B	220	210 for Site 1, Site 2, Site 3	430
Peak Workforce		< 10 for Field Research Center				
		<b>Total: 110 workers</b>	<b>Total with No Action - Planning Basis Operations Alternative: 330 workers</b>	<b>Total with No Action - Planning Basis Operations Alternative: 330 workers</b>	<b>Total with No Action - Planning Basis Operations Alternative: 320 workers</b>	<b>Total with No Action - Planning Basis Operations Alternative: 540 workers</b>
<u>Operation:</u> (Workers)	No change from existing workforce of 8,900	25 for EMWMF	100 for one year transition period	100 for one year transition period	36 for Site 1, Site 2, Site 3	66

TABLE 3.5–1.—Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives [Page 4 of 30]

Resource/ Material Categories	Alternative 1		Alternative 2		Alternative 3	Alternative 4
	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
		6 for Field Research Center	30 for normal operation	49 for normal operation		
		<b>Total: 31</b>	<b>Total with No Action - Planning Basis Operations Alternative: 61</b>	<b>Total with No Action - Planning Basis Operations Alternative: 70</b>	<b>Total with No Action - Planning Basis Operations Alternative: 97</b>	<b>Total with No Action - Planning Basis Operations Alternative: 97</b>
		Impact on Regional Economy < 1 percent	Impact on Regional Economy < 1 percent	Impact on Regional Economy < 1 percent	Impact on Regional Economy < 1 percent	Impact on Regional Economy < 1 percent
<b>Geology and Soils</b>						
<u>Construction:</u>	No new construction or potential increase in soil erosion	Potential increase in soil erosion due to storm water runoff from EMWMF and Y-12 borrow area. Detention basins and runoff control ditches would minimize soil erosion and impacts.	Potential increase in soil erosion due to storm water runoff at Site A construction lay down area and new parking lot. Detention basins and runoff control ditches would minimize soil erosion and impacts. No impacts to geology are expected.	Small potential for increase in soil erosion. Standard soil erosion control measures would be used to minimize impacts. No impacts to geology are expected.	At Site 1, potential impact to soil profile and increase in soil erosion due to storm water runoff at construction lay down area and new parking lot. Detention basins and runoff control ditches would minimize soil erosion and impacts. No impacts to geology are expected.	Potential increase in soil erosion due to storm water runoff. Detention basins, silt fences, and runoff control ditches would minimize soil erosion and impacts. No impacts to geology are expected.
		Small potential increase in soil erosion from Field Research Center. Soil erosion controls would minimize impacts.			Small potential increase in soil erosion at Site 2 and Site 3. No impacts to geology are expected.	

**TABLE 3.5–1.—Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives [Page 5 of 30]**

	Alternative 1		Alternative 2		Alternative 3	Alternative 4
Resource/ Material Categories	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
<u>Operation:</u>	No increase in soil erosion or impact to geology.	Minimal impacts expected from EMWMF and Y-12 borrow area activities. Detention basins, runoff control ditches, and cell design components would minimize impacts to geology and soils.	No impacts to geology or soils are expected at Site A or Site B with engineered design measures.	No impacts to geology or soils are expected with engineered design measures.	No impacts to geology or soils are expected at Site 1, Site 2, or Site 3 with engineered design measures.	Minimal impact expected due to EMWMF and borrow site activities. Engineered controls would minimize impacts.

**Water Resources****Surface Water:**

<u>Construction:</u>	No change from 15.7 MLD treated water requirement or 17.9 MLD raw water requirement. Surface water discharges meet NPDES permit limits.	No substantial change to surface raw water requirements, discharge, or water quality conditions. Small increase (4.5 MLD) to 20.2 MLD in treated water requirement. Minimal impacts from sediment loading or contaminated runoff from EMWMF or Y-12 borrow area due to engineered barriers (e.g., detention basins, stormwater runoff control ditches).	No substantial change to surface raw water requirements, discharge, or water quality conditions. Small amount (5,140 L/day) of treated water requirement (7.5 million L during 4-yr. construction period) if HEU Materials Facility is constructed at Site A or Site B. Potential for increased storm water runoff at Site A.	No substantial change to surface raw water requirements, discharge, or water quality conditions. Small amount (3,980 L/day) of treated water requirements (5.7 million L during 4-yr. construction period) if Upgrade Expansion to Building 9215 is constructed.	No substantial change to surface raw water requirements, discharge, or water quality. Small amount (4,460 L/day) of treated water requirement (5.7 million L during 3.5-yr. construction period) if Special Materials Complex is constructed at Site 1, Site 2 or Site 3. Potential for increased stormwater runoff at Site 1.	No substantial change to surface raw water requirements, discharge, or water quality. Small increase (4,510,000 L/day) to 20.21 MLD in treated water requirement.
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	Alternative 1		Alternative 2		Alternative 3	Alternative 4
Resource/ Material Categories	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
<u>Operation:</u>	No change from 15.7 MLD treated water requirement or 17.9 MLD raw water requirement. Surface water discharges meet NPDES permit limits.	No impacts from Field Research Center activities.  No substantial change to surface raw water requirements, discharge, or water quality conditions. Small increase (4.5 MLD [1.2 MGD]) to 20.2 MLD (5.34 MGD) in treated water requirement. Minimal impacts from sediment loading or contaminated runoff from EMWMF or Y-12 borrow area due to engineered barriers (e.g., detention basins, stormwater runoff control ditches).	Negligible impact to surface water with soil erosion and surface water control measures.  Small increase (1,510 L/day [400 gal/day]) in treated water requirements and discharge but negligible increase from No Action - Planning Basis Operations Alternative surface water requirements, discharges, or water quality conditions at Site A or Site B. All water quality parameters within established limits with pretreatment.	Negligible impact to surface water with soil erosion and surface water control measures.  Small increase (1,975 L/day [520 gal/day]) in treated water requirements and discharge but negligible increase from No Action - Planning Basis Operations Alternative water requirements, discharge, or water quality conditions. All water quality parameters within established limits with pretreatment.	Negligible impact to surface water with soil erosion and surface water control measures.  Small increase (228,600 L/day [63,000 gal/day]) in treated water requirements and discharge but negligible increase from No Action - Planning Basis Operations Alternative surface water requirements, discharges, or water quality conditions. All water quality parameters within established limits with pretreatment.	Negligible impact to surface water with soil erosion and surface water control measures.  Small increase (20.43 MLD [5.4 MGD]) in treated water requirements over No Action - Status Quo Alternative but negligible increase to raw water requirements, discharges, or water quality conditions. All water quality parameters within established limits with pretreatment. Negligible impacts to surface water with soil erosion and surface No Action - Planning Basis Operations Alternative water control measures.
<b>Groundwater</b>						
<u>Construction:</u>	No new construction or change in groundwater use or quality.	Negligible impact from tracer material used in Field Research Center tests.  No groundwater requirement or additional impacts to groundwater quality conditions from the EMWMF or Y-12 borrow area.  No groundwater requirement or additional impacts to groundwater quality conditions from the Field Research Center.	Negligible impacts to surface water with soil erosion and surface water control measures.  No groundwater requirement or additional impacts to groundwater quality conditions if new HEU Materials Facility is constructed at Site A or Site B.	Negligible impacts to surface water with soil erosion and surface water control measures.  No groundwater requirement or additional impacts to groundwater quality conditions if new Building 9215 expansion is constructed.	Negligible impacts to surface water with soil erosion and surface water control measures.  No groundwater requirement or additional impacts to groundwater quality conditions if new Special Materials Complex is constructed at Site 1, Site 2, or Site 3.	No groundwater requirement or additional impacts to groundwater quality conditions.

**TABLE 3.5–1.—Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives [Page 7 of 30]**

Resource/ Material Categories	Alternative 1		Alternative 2		Alternative 3	Alternative 4
	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
<u>Operation:</u>	No groundwater requirement or change in groundwater use or quality.	No groundwater requirement or additional impacts to groundwater quality conditions from the EMWMF. The EMWMF design measures (e.g., natural and man-made synthetic liners) would prevent releases that could impact groundwater quality.  Field Research Center sampling activities would remove approximately 7,570 L (2,000 gal) of groundwater per year. Minor impacts to groundwater quality due to injected additives and tracers for research study. Groundwater quality may improve with some research study treatment tests.	No groundwater requirement or additional impacts to groundwater quality conditions from new facility.  Same No Action - Planning Basis Operations Alternative Field Research Center potential groundwater impacts.	No groundwater requirement or additional impacts to groundwater quality conditions from new facility.  Same No Action - Planning Basis Operations Alternative Field Research Center potential groundwater impacts.	No groundwater requirement or additional impacts to groundwater quality conditions from new facility.  Same No Action - Planning Basis Operations Alternative Field Research Center potential groundwater impacts.	No groundwater requirement or additional impacts to groundwater quality conditions from new facility.  Same No Action - Planning Basis Operations Alternative Field Research Center potential groundwater impacts.

TABLE 3.5–1.—Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives [Page 8 of 30]

Resource/ Material Categories	Alternative 1		Alternative 2		Alternative 3	Alternative 4
	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
<b>Biological Resources</b>						
<b>Terrestrial</b>						
<u>Construction:</u>	No new construction or impacts to terrestrial resources.	Impacts due to land clearing activities associated with EMWMF and Y-12 borrow area, loss of grassland, old field habitat, and mixed hardwood/conifer forest habitat. Small animal dislocation and reduction in abundance can be expected.	Impacts due to land clearing activities for construction and new parking lot if HEU Materials Facility is constructed at Site A. Loss of grassland, habitat (~2 ha [5 acres]) and small animal dislocation and disturbance can be expected.	Negligible impacts if new addition to Building 9215 is constructed.	Impacts due to land clearing activities at construction site and construction lay down area if Special Materials Complex is constructed at Site 1. Loss of approximately 4 ha (10 acres) terrestrial habitat and dislocation/disturbance of wildlife.	Impacts due to land clearing activities and construction sites. Loss of grassland, old field habitat, and mixed hardwood/conifer forest habitat. Dislocation and disturbance to wildlife can be expected.
		Minimal impact to terrestrial species or habitat from Field Research Center activities.	Negligible impacts if HEU Materials Facility is constructed at Site B.		Negligible impacts if Special Materials Complex is constructed at Site 2 or Site 3.	
<u>Operation:</u>	No new impacts to terrestrial resources from Y-12 operations.	Minor impact to terrestrial resources from the EMWMF or Y-12 borrow area. Operations noise and human activity may disturb or displace some wildlife.  Negligible impact to terrestrial resources from Field Research Center activities. Noise and human activity may disturb or displace some wildlife.	Negligible impacts at Site A or Site B from operations due to noise and human activity.	Negligible impacts from operations due to noise and human activity.	Negligible impacts at Site 1, Site 2, or Site 3 from operations due to noise and human activity.	Negligible impacts due to operation noise and human disturbance.



**TABLE 3.5–1.—Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives [Page 9 of 30]**

Resource/ Material Categories	Alternative 1		Alternative 2		Alternative 3	Alternative 4
	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
<b>Wetlands</b>						
<u>Construction:</u>	No change in the 18 wetlands (6.14 ha [15.2 acres]) within the Y-12 area of analysis.	Potential impact to 0.4 ha (1 acre) wetland from EMWMF.  No impact from Y-12 borrow area activities.  No impact from Field Research Center activities.  <b>Total: 0.4 ha (1 acre)</b>	Potential impact to 3 man-made wetlands (0.4 ha [1 acre]) if the HEU Materials Facility is constructed at Site A. Impacts due to construction of lay down area and new parking lot.  No impacts to wetlands if HEU Materials Facility is constructed at Site B.  <b>Total with No Action - Planning Basis Operations Alternative: 0.8 ha (2 acres)</b>	No impacts to wetlands if new expansion to Building 9215 is constructed.  <b>Total with No Action - Planning Basis Operations Alternative: 0.4 ha (1 acre)</b>	Potential impact on 2 man-made wetlands (0.4 ha [1 acres]) if Special Materials Complex is constructed at Site 1. Impacts due to land clearing and potential sedimentation from construction activities.  No impact on wetlands if Special Materials Complex is constructed at Site 2 or Site 3.  <b>Total with No Action - Planning Basis Operations Alternative: 0.8 ha (2 acres)</b>	Potential impact to 0.8 ha (2 acres) of wetlands within the Y-12 area of analysis.  <b>Total with No Action - Planning Basis Operations Alternative: 1.2 ha (3 acres)</b>
<u>Operation:</u>	No change in the 18 wetlands within the Y-12 area of analysis.	No impacts on wetlands from EMWMF or Y-12 borrow area operation activities.  No impacts on wetlands from Field Research Center operation activities.	No impacts on wetlands at Site A or Site B from HEU Materials Facility operation.	No impacts to wetlands from operation.	No impacts on wetlands from Special Materials Complex operation.	No impacts on wetlands.

TABLE 3.5–1.—Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives [Page 10 of 30]

Resource/ Material Categories	Alternative 1		Alternative 2		Alternative 3	Alternative 4
	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
<b>Aquatic</b>						
<u>Construction:</u>	No new construction or change to aquatic resources.	No impacts to aquatic resources from EMWMF or Y-12 borrow area activities.  No impact from Field Research Center activities.	No impacts to aquatic resources if HEU Materials Facility is constructed at Site A or Site B.	No impacts to aquatic resources if expansion to Building 9215 is constructed.	No impacts to aquatic resources if Special Materials Complex is constructed at Site 1, Site 2, or Site 3.	No impacts to aquatic resources.
<u>Operation:</u>	No change in aquatic resources from Y-12 operation activities.  No impacts to aquatic resources.	No impacts to aquatic resources from EMWMF or Y-12 borrow area operation.  No impact from Field Research Center operations activities.	No impacts to aquatic resources from HEU Materials Facility operation.	No impacts to aquatic resources from new storage expansion operation.	No impacts to aquatic resources from Special Materials Complex operation.	No impacts to aquatic resources.
<b>Threatened/Endangered Species</b>						
<u>Construction:</u>	No new construction or impacts to threatened/endangered species within Y-12 area of analysis.	Potential impacts to Tennessee Endangered species pink lady slipper and Tennessee Threatened species tuberculed rein-orchid and carolina quillwort from EMWMF construction activities. Impacts due to forest clearing and construction activities in close proximity to sensitive habitat.	Potential impacts from EMWMF under No Action - Planning Basis Operations Alternative.  No impacts to threatened/endangered species if HEU Materials Facility is constructed at Site A or Site B.	Potential impacts from EMWMF under No Action - Planning Basis Operations Alternative.  No impacts to threatened/endangered species if storage expansion to Building 9215 is constructed.	Potential impacts from EMWMF under No Action - Planning Basis Operations Alternative.  No impacts to threatened/endangered species if Special Materials Complex is constructed at Site 1, Site 2 or Site 3.	Potential impacts from EMWMF under No Action - Planning Basis Operations Alternative.  No impacts to threatened/endangered species from HEU Materials Facility or Special Materials Complex.

TABLE 3.5–1.—*Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives* [Page 11 of 30]

Resource/ Material Categories	Alternative 1		Alternative 2		Alternative 3	Alternative 4
	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
<u>Operation:</u>	No impacts to threatened/ endangered species from operation activities.	No impact from Y-12 borrow area activities to threatened/endangered species.  No impact from Field Research Center operation activities.	No impact to threatened/endangered species from HEU Materials Facility operation.	No impact to threatened/endangered species from storage expansion operation.	No impact to threatened/endangered species from Special Materials Complex operation.	No impact to threatened/endangered species from operations.
<b>Air Quality</b>						
Nonradiological Emissions						
<u>Construction:</u>	No new construction. All criteria pollutant levels within acceptable standards.	Potential fugitive dust emissions from EMWMF and Y-12 borrow area during construction. Standard dust control measures would be used. No off-site impact.  Potential fugitive dust emissions from Field Research Center due to minor site clearing and drilling activities. Standard dust control measures would be used. No off-site impacts.	Potential fugitive dust emissions if HEU Materials Facility is constructed at Site A or Site B. Site A construction activities would generate more fugitive dust emissions due to site preparation for new parking lot and lay down area. Standard dust control measures would be used. No off-site impacts.	Potential fugitive dust emissions if expansion to Building 9215 is constructed. Standard dust control measures would be used. No off-site impacts.	Potential fugitive dust emissions if Special Materials Complex is constructed at Site 1, Site 2, or Site 3. Site 1 construction activities would generate more fugitive dust emissions than Site 2 or Site 3 due to larger construction site, land clearing, and lay-down area site preparation. Standard dust control measures would be used. No off-site impacts.	Potential fugitive dust emissions due to land disturbance and construction activities. Standard dust control measures would be used to minimize fugitive dust impacts. No off-site impacts.

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Alternative 1		Alternative 2		Alternative 3		Alternative 4	
Resource/ Material Categories	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex	
<u>Operation:</u>	Concentrations of regulated nonradiological air pollutants are within standards except for 1-hour ozone. Concentrations of mercury vapor are well below the ACGIH TLV of 50 µg/m³.	No change to No Action - Status Quo Alternative air quality conditions from Y-12 mission normal operations. Nonradiological air pollutant concentrations would increase but would be well within established criteria. Potential impact if Y-12 Steam Plant operated at 522 million BTU/hr heat input capacity from higher ozone concentrations.	No change to No Action - Planning Basis Operations Alternative air quality conditions from HEU storage operations. Nonradiological air pollutant concentrations would be well within established criteria. Potential impact if Y-12 Steam Plant operated at 522 million BTU/hr heat input capacity from higher ozone concentrations.	No change to No Action - Planning Basis Operations Alternative air quality conditions from new storage expansion operations. Nonradiological air pollutant concentrations would be well within established criteria. Potential impact if Y-12 Steam Plant operated at 522 million BTU/hr heat input capacity from higher ozone concentrations.	No change to No Action - Planning Basis Operations Alternative air quality conditions from special materials operations. Nonradiological air pollutant concentrations would be well within established criteria. Potential impact if Y-12 Steam Plant operated at 522 million BTU/hr heat input capacity from higher ozone concentrations.	No change to No Action - Status Quo Alternative air quality conditions. Nonradiological air pollutant concentrations would increase but would be within established standards. Potential impact if Y-12 Steam Plant operated at 522 million BTU/hr heat input capacity from higher ozone concentrations.	
Radiological Emissions							
<u>Construction:</u>	No new construction or change in Y-12 radiological emissions.	No radiological emissions from EMWMF construction activities.  No radiological emissions from Field Research Center construction activities.	No radiological emissions from construction of HEU Materials Facility at Site A or Site B.	No radiological emission from construction of storage expansion to Building 9215.	No radiological emissions from construction of Special Materials Complex at Site 1, Site 2, or Site 3.	No radiological emissions.	
<u>Operation:</u>	Radiation dose to the MEI is 0.53 mrem. The dose is well below the NESHAP standard of 10 mrem/yr.	Radiation dose to the MEI (1,080 m [3,543 ft] from Y-12) would increase from 0.53 mrem/yr under No Action - Status Quo Alternative to 4.5 mrem/yr. The dose is well below the NESHAP standard of 10 mrem/yr.	No change from No Action - Planning Basis Operations Alternative if HEU Materials Facility is constructed. Radiation dose to MEI would be 4.5 mrem/yr.	No change from No Action - Planning Basis Operations Alternative if storage expansion to Building 9215 is constructed. Radiation dose to MEI would be 4.5 mrem/yr.	No change from No Action - Planning Basis Operations Alternative. No radioactive materials would be used or stored at the complex. Radiation dose to MEI would be 4.5 mrem/ yr.	Radiation dose to the MEI would increase from 0.53 mrem/yr under No Action - Status Quo Alternative to 4.5 mrem/yr. The dose is well below the NESHAP standard of 10 mrem/yr.	

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	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
	Radiation dose to the population within 80 km (50 mi) is 4.3 person-rem/yr.	Radiation dose to the population (80 km [50 mi] radius) would be 33.7 person-rem/yr.	Radiation dose to the population within 80 km (50 mi) would be 33.7 person-rem/yr.	Radiation dose to the population within 80 km (50 mi) would be 33.7 person-rem/yr.	Radiation dose to the population within 80 km (50 mi) would be 33.7 person-rem/yr.	Radiation dose to the population within 80 km (50 mi) would be 33.7 person-rem/yr.
<b>Visual Resources</b>						
<u>Construction:</u>	No change in Y-12 Site visual setting or visual resources.	The EMWFM, Y-12 borrow area, and Field Research Center Project areas are not visible to the public. The site construction activities would be compatible with current uses and consistent with existing visual character of the area. No additional impact to visual resources.	Site A and Site B for the HEU Materials Facility are not visible to the public. No additional impact to visual resources from No Action - Status Quo Alternative under this alternative.	The Building 9215 expansion site is not visible to the public. No additional impact to visual resources from No Action - Status Quo Alternative under this alternative.	Site 1, Site 2, and Site 3 for the new Special Materials Complex are not visible to the public. No additional impact to visual resources from No Action - Status Quo Alternative under this alternative.	No additional impact to visual resources from No Action - Status Quo Alternative under this alternative.
<u>Operation:</u>	No change in Y-12 Site visual setting or visual resources.	No additional impact to visual resources from No Action - Status Quo Alternative.	No additional impact to visual resources from No Action - Status Quo Alternative. The new HEU materials facility would be consistent with the existing visual character of the area.	No additional impact to visual resources from No Action - Status Quo Alternative. The Building 9215 expansion would be consistent with the existing visual character of the area.	No additional impact to visual resources from No Action - Status Quo Alternative. The new Special Materials Complex would be consistent with the existing visual character of the area.	No additional impact to visual resources from No Action - Status Quo Alternative. New facilities would be consistent with the existing visual character of the area.

**TABLE 3.5–1.—Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives [Page 14 of 30]**

Resource/ Material Categories	Alternative 1		Alternative 2		Alternative 3	Alternative 4
	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
<b>Noise</b>						
<u>Construction:</u>	No change in on-site noise levels of 50 to 70 dBA. Off-site noise levels would remain at 35 to 50 dBA in rural locations and 53 to 62 dBA in city of Oak Ridge.	Increase in noise levels due to construction equipment and activities associated with EMWMF and Y-12 borrow area. Impact would be limited to general construction area and not noticeable to the public.  Small increase in noise levels from Field Research Center activities but localized in study area.	Increase in noise levels (89 to 108 dBA) if HEU Materials Facility is constructed at Site A or Site B. Impacts would be limited to general construction area. No off-site noise impacts except for construction vehicle traffic.	Localized increase in noise levels (89 to 108 dBA) if storage expansion to Building 9215 is constructed. No off-site noise impacts except for construction vehicle traffic.	Increase in noise levels (89 to 108 dBA) if Special Materials Complex is constructed at Site 1, Site 2, or Site 3. Impacts would be limited to general construction area. No off-site impacts except for construction vehicle traffic.	Increase in noise levels (89 to 108 dBA) due to construction equipment and activities. Impacts would be limited to the general construction area sites. Cumulative noise levels 70 dBA. No off-site impacts except for construction vehicle traffic.
<u>Operation:</u>	No change in on-site noise levels of 50 to 70 dBA. Off-site noise levels would remain at 35 to 50 dBA in rural locations and 53 to 62 dBA in city of Oak Ridge.	No off-site increase in noise levels from No Action - Status Quo Alternative due to operation of the EMWMF, the Field Research Center, or activities at Y-12 borrow area.	No off-site change from No Action - Status Quo Alternative noise levels. On-site noise levels would be in range of 50 to 70 dBA.	No off-site change from No Action - Status Quo Alternative noise levels. On-site noise levels would be in range of 50 to 70 dBA.	No off-site change from No Action - Status Quo Alternative noise levels. On-site noise levels would be in range of 50 to 70 dBA.	No off-site change from No Action - Status Quo Alternative noise levels. On-site noise levels would be in range of 50 to 70 dBA.

TABLE 3.5–1.—*Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives* [Page 15 of 30]

Resource/ Material Categories	Alternative 1		Alternative 2		Alternative 3	Alternative 4
	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
<b>Site Infrastructure</b>						
<u>Construction:</u>	No measurable change in Y-12 site energy usage or other infrastructure resources.	No measurable change in Y-12 site energy usage or other infrastructure resources from the construction of the EMWMF or Field Research Center.	<p>If the HEU Materials Facility is constructed at Site A, existing utilities would require relocation but no buildings would be demolished. Construction resources include 25,100 m<sup>3</sup> (32,830 yd<sup>3</sup>) of concrete and 7.5 million L (2 million gal) of water during the 4-year construction period.</p> <p>If the HEU Materials Facility is constructed at Site B existing infrastructure (Old Bear Creek Road) and utilities would require relocation. Eight buildings would be demolished. Construction resources include 25,100 m<sup>3</sup> (32,830 yd<sup>3</sup>) of concrete and 7.5 million L (2 million gal) of water during the 4-year construction period.</p>	If the Building 9215 expansion is constructed existing utilities would require relocation. No permanent building would be demolished. Construction resources include 7,650 m <sup>3</sup> (10,005 yd <sup>3</sup> ) of concrete and 5.7 million L (1.5 million gal) of water during the 4-year construction period.	If the Special Materials Complex is constructed at Sites 1, 2, or 3, existing utilities would require relocation. A number of buildings would be demolished at Site 2 and Site 3. Construction resources include 13,800 m <sup>3</sup> (18,050 yd <sup>3</sup> ) of concrete for Site 1 and 14,500m <sup>3</sup> (18,966 yd <sup>3</sup> ) for Site 2 and Site 3.	If the HEU Material Facility is constructed at Site A or B and the Special Materials Complex is constructed at Site 1, 2, or 3, existing utilities would require relocation and up to 16 buildings would be demolished. Construction resources would include 46,630 m <sup>3</sup> (61,000 yd <sup>3</sup> ) of concrete and 13.2 million L (3.5 million gal) of water during the construction period which could run from 4 to 7.5 years.

TABLE 3.5–1.—Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives [Page 16 of 30]

Resource/ Material Categories	Alternative 1		Alternative 2		Alternative 3	Alternative 4
	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
<u>Operation:</u>	Continue electrical usage of 377,000 MWh/yr and water usage of 15.7 MLD (4.2 MGD). Both amounts well within existing Y-12 site capacities.	Small increase in overall Y-12 energy and resource requirements. Electrical energy consumption would increase to 566,000 MWh/yr from 377,000 MWh/yr under No Action - Status Quo Alternative. Increases would be well within existing capacities at Y-12. Water usage would increase to 20.2 MLD (5.3 MGD) from 15.7 MLD (4.2 MGD) under No Action - Status Quo Alternative.  <b>Total:</b> 566,000 MWh/y in electrical usage (an increase of 189,000). Combined water use increase of 5.3 MGD.	Increase of electrical usage by 5,900 MWh/yr and water usage of 1,510L/day (400 gal/day). Vacating existing HEU storage facilities could partially offset these increases. Sufficient capacity exists to support the increases.  <b>Total with No Action - Planning Basis Operations Alternative:</b> 572,000 MWh/yr in electrical usage (an increase of 194,900). Combined water use increase would still be approximately 5.3 MGD.	Increase in electrical usage by 10,900 MWh/yr and water usage of 1,975L/day (520 gal/day). Vacating existing HEU storage facilities could partially offset these projected increases. Sufficient capacity exists to support the increases.  <b>Total with No Action - Planning Basis Operations Alternative:</b> 577,000 MWh/yr in electrical usage (an increase of 199,900). Combined water usage increase would still be approximately 5.3 MGD.	Increase in electrical usage by 30,400 MWh/yr and water usage of 228,600L/day (60,400 gal/day). Vacating existing Special Materials operations facilities could partially offset these projected increases. Sufficient capacity exists to support the increases.  <b>Total with No Action - Planning Basis Operations Alternative:</b> 596,000 MWh/yr in electrical usage (an increase of 217,900). Combined water usage increase would still be approximately 5.3 MGD.	Increase in electrical usage by 36,300 MWh/yr. Water usage would increase by 230,110 L/day (60,788 gal/day). Sufficient capacity exists to support the increases.  <b>Total with No Action - Planning Basis Operations Alternative:</b> 602,000 MWh/yr in electrical usage (an increase of 225,300). Combined water usage increase would be approximately 5.4 MGD.



TABLE 3.5–1.—Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives [Page 17 of 30]

Resource/ Material Categories	Alternative 1		Alternative 2		Alternative 3	Alternative 4
	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
<b>Cultural Resources</b>						
<u>Construction:</u>	No new construction or building modification; no impacts to cultural resources is expected	No impact to cultural resources is expected from the EMWMF, Y-12 Borrow area, or Field Research Center activities.	No impact to cultural resources is expected from construction of HEU Materials Facility at Site A or Site B. Utility relocation associated with construction could encounter buried cultural resources. Any potential adverse effects are anticipated to be minor and mitigatable.	The expansion of Building 9215 would be a major alteration of a historic property. Consultation with the Tennessee Historical Commission (SHPO) would be conducted in accordance with procedures in the Y-12 Cultural Resources Management Plan.	No impact to cultural resources is expected from construction of the Special Materials Complex at Site 1, Site 2, or Site 3. No historic properties would be affected. Utility relocation or site construction activities could encounter buried cultural resources. Any potential effects are anticipated to be minor and mitigatable.	No impact to cultural resources is expected. Utility relocation or site construction activities could encounter buried cultural resources. Any potential effects are anticipated to be minor and mitigatable.
<u>Operation:</u>	The continued use of buildings in their historic role would have a positive impact on the integrity of historic properties. Ongoing minor impacts due to aging of historic structures.	No additional impact from No Action - Status Quo Alternative to cultural resources is expected.	No additional impact from No Action - Status Quo Alternative to cultural resources is expected.	No additional impact from No Action - Status Quo Alternative to cultural resources is expected.	No additional impact from No Action - Status Quo Alternative to cultural resources is expected.	No additional impact from No Action - Status Quo Alternative to cultural resources is expected.

TABLE 3.5–1.—Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives [Page 18 of 30]

Resource/ Material Categories	Alternative 1		Alternative 2		Alternative 3	Alternative 4
	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
<b>Waste Management</b>						
<u>Construction:</u>	No new construction waste would be generated as a result of operations.	Small amounts of non-hazardous construction waste generated from the EMWMF, Y-12 borrow area, and Field Research Center construction activities.	At Site A, approximately 3,823m <sup>3</sup> (5,000 yd <sup>3</sup> ) of non-hazardous construction debris and 14.8 million L (3.9 million gal) of non-hazardous sanitary waste would be generated during the 4-year construction period.  At Site B, approximately 3,823m <sup>3</sup> (5,000 yd <sup>3</sup> ) of non-hazardous construction debris and 14.8 million L (3.9 million gal) of non-hazardous sanitary waste would be generated during the 4-year construction period.  An additional 22,707m <sup>3</sup> (29,700 yd <sup>3</sup> ) of contaminated soil (mixed LLW) would be excavated.	Approximately 3,058 m <sup>3</sup> (4,000 yd <sup>3</sup> ) of non-hazardous construction debris and 14.8 million L (3.9 million gal) of non-hazardous sanitary waste would be generated during the 4-year construction period.	At Site 1, approximately 917m <sup>3</sup> (1,200 yd <sup>3</sup> ) of non-hazardous construction debris and 1,447,541 L (382,400 gal) of non-hazardous sanitary waste would be generated during the 3.5-year construction period.  At Site 2, approximately 3,420 m <sup>3</sup> (4,470 yd <sup>3</sup> ) of non-hazardous construction debris and 1,447,541 L (382,400 gal) of non-hazardous sanitary waste would be generated during the 3.5-year construction period.  An additional 46,867 m <sup>3</sup> (61,300 yd <sup>3</sup> ) of contaminated soil (mixed LLW) would be excavated.	Under this alternative approximately 7,268m <sup>3</sup> (9,506 yd <sup>3</sup> ) of non-hazardous construction debris and 15,995,000L (4.2 million gal) of non-hazardous sanitary waste and would be generated.  An additional 69,574m <sup>3</sup> (90,999 yd <sup>3</sup> ) of contaminated soil would be excavated (mixed LLW).

**TABLE 3.5–1.—Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives [Page 19 of 30]**

Resource/ Material Categories	Alternative 1		Alternative 2		Alternative 3	Alternative 4
	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex

At Site 3, approximately 22,707m<sup>3</sup> (29,700 yd<sup>3</sup>) of contaminated soil (mixed LLW) would be excavated. An additional 3,445m<sup>3</sup> (4,500 yd<sup>3</sup>) of non-hazardous construction debris and 1,447,541m<sup>3</sup> (382,400 gal) of non-hazardous sanitary waste would be generated during the 3.5 year construction period.

An estimated 3,000L (800 gal) and 38m<sup>3</sup> (50 yd<sup>3</sup>) of hazardous waste would be generated from the use of construction equipment.

An estimated 1,100L (300 gal) and 15m<sup>3</sup> (20 yd<sup>3</sup>) of hazardous waste would be generated from the use of construction equipment.

Up to 11,400L (3,000 gal) and 107m<sup>3</sup> (140 yd<sup>3</sup>) of hazardous waste would be generated at any one site from the use of construction equipment.

An estimated 14,400L (3,804 gal) and 145m<sup>3</sup> (190 yd<sup>3</sup>) of hazardous waste would be generated from use of construction equipment.

TABLE 3.5–1.—Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives [Page 20 of 30]

Resource/ Material Categories	Alternative 1		Alternative 2		Alternative 3	Alternative 4
	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
<i>Operation:</i>	Annual waste generation at Y-12 (1998) included:	Projected annual waste generation (1998) plus waste forecast:	Operation of the HEU Materials Facility would generate the following additional amounts of waste per year:	Operation of the Building 2915 storage expansion would generate the following additional amounts of waste per year:	Operation of the Special Materials Complex would generate the following additional amounts of waste per year:	Operation of the HEU Materials Facility and Special Materials Complex would generate the following total amounts of waste per year:
<b>LLW</b>	Liquid 1,000,000L (264,172 gal) Solid 1,224 m <sup>3</sup> (1,601 yd <sup>3</sup> )	<b>LLW</b> Liquid 1,118,800L (295,556 gal) Solid 2,099 m <sup>3</sup> (2,745 yd <sup>3</sup> )	<b>LLW</b> Liquid 757L (200 gal) Solid 119 m <sup>3</sup> (156 yd <sup>3</sup> )	<b>LLW</b> Liquid 606L (160 gal) Solid 119m <sup>3</sup> (156 yd <sup>3</sup> )	<b>LLW</b> Liquid - None Solid 0.8 m <sup>3</sup> (1 yd <sup>3</sup> )	<b>LLW</b> Liquid 757 L (200 gal) Solid 120 m <sup>3</sup> (157 yd <sup>3</sup> )
<b>Mixed LLW</b>	Liquid 22,500L (5,944 gal) Solid 33 m <sup>3</sup> (43 yd <sup>3</sup> )	<b>Mixed LLW</b> Liquid 936,783 L (247,477 gal) Solid 162 m <sup>3</sup> (212 yd <sup>3</sup> )	<b>Mixed LLW</b> Liquid - None Solid - None	<b>Mixed LLW</b> Liquid - None Solid - None	<b>Mixed LLW</b> Liquid - None Solid - None	<b>Mixed LLW</b> Liquid - None Solid - None
<b>Hazardous</b>	Liquid 3,300L (872 gal) Solid 8 m <sup>3</sup> (10 yd <sup>3</sup> )	<b>Hazardous</b> Liquid 10,400L (2,748 gal) Solid 26 m <sup>3</sup> (34 yd <sup>3</sup> )	<b>Hazardous</b> Liquid 2,498L (660 gal) Solid 1.5 m <sup>3</sup> (2 yd <sup>3</sup> )	<b>Hazardous</b> Liquid 2,498L (660 gal) Solid 1.5 m <sup>3</sup> (2 yd <sup>3</sup> )	<b>Hazardous</b> Liquid 12,500L (3,302 gal) Solid 9.2 m <sup>3</sup> (12 yd <sup>3</sup> )	<b>Hazardous</b> Liquid 14,998 L (3,962 gal) Solid 10.7 m <sup>3</sup> (48 yd <sup>3</sup> )
<b>Sanitary/Ind</b>	Liquid 1,406,000L (371,426 gal) Solid 5,389 m <sup>3</sup> (7,049 yd <sup>3</sup> ).	<b>Sanitary/Ind</b> Liquid 2,318,000L (612,298 gal) Solid 8,883 m <sup>3</sup> (11,619 yd <sup>3</sup> ).	<b>Sanitary/Ind</b> Liquid 781,309L (206,400 gal) Solid 179 m <sup>3</sup> (234 yd <sup>3</sup> ).	<b>Sanitary/Ind</b> Liquid 1,273,601L (336,450 gal) Solid 179 m <sup>3</sup> (234 yd <sup>3</sup> ).	<b>Sanitary/Ind</b> Liquid 932,725L (246,400 gal) Solid 175 m <sup>3</sup> (229 yd <sup>3</sup> ).	<b>Sanitary/Ind</b> Liquid 1,714,034 L (452,800 gal) Solid 354 m <sup>3</sup> (463 yd <sup>3</sup> )
		The EMWMF would have a beneficial impact on Y-12 waste management by providing on-site disposal capacity.				

TABLE 3.5–1.—*Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives* [Page 21 of 30]

Resource/ Material Categories	Alternative 1		Alternative 2		Alternative 3	Alternative 4
	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
			<b>Total with No Action - Planning Basis Operations Alternative:</b>	<b>Total with No Action - Planning Basis Operations Alternative:</b>	<b>Total with No Action - Planning Basis Operations Alternative:</b>	<b>Total with No Action - Planning Basis Operations Alternative:</b>
			<b>LLW</b>	<b>LLW</b>	<b>LLW</b>	<b>LLW</b>
			Liquid 1,119,557L (295,756 gal) Solid 2,218 m <sup>3</sup> (2,901 yd <sup>3</sup> )	Liquid 1,119,406L (295,716 gal) Solid 2,218 m <sup>3</sup> (2,901 yd <sup>3</sup> );	Liquid 1,118,800L (295,556 gal) Solid 2,100 m <sup>3</sup> (2,746 yd <sup>3</sup> )	Liquid 1,119,557L (295,756 gal) Solid 2,219 m <sup>3</sup> (2,902 yd <sup>3</sup> )
			<b>Mixed LLW</b>	<b>Mixed LLW</b>	<b>Mixed LLW</b>	<b>Mixed LLW</b>
			Liquid 936,783L (247,477 gal) Solid 162 m <sup>3</sup> (212 yd <sup>3</sup> )	Liquid 936,783L (247,477 gal) Solid 162 m <sup>3</sup> (212 yd <sup>3</sup> )	Liquid 936,783L (247,477 gal) Solid 162 m <sup>3</sup> (212 yd <sup>3</sup> )	Liquid 936,783L (247,477 gal) Solid 162 m <sup>3</sup> (212 yd <sup>3</sup> )
			<b>Hazardous</b>	<b>Hazardous</b>	<b>Hazardous</b>	<b>Hazardous</b>
			Liquid 12,898L (3,408 gal) Solid 27.7 m <sup>3</sup> (36.2 yd <sup>3</sup> )	Liquid 12,898L (3,408 gal) Solid 27.7 m <sup>3</sup> (36.2 yd <sup>3</sup> )	Liquid 22,900L (6,050 gal) Solid 35.3 m <sup>3</sup> (46.2 yd <sup>3</sup> )	Liquid 25,398L (6,710 gal) Solid 37 m <sup>3</sup> (48 yd <sup>3</sup> )
			<b>Sanitary/Ind</b>	<b>Sanitary/Ind</b>	<b>Sanitary/Ind</b>	<b>Sanitary/Ind</b>
			Liquid 3,099,309L (818,698 gal) Solid 9,062 m <sup>3</sup> (11,853 yd <sup>3</sup> )	Liquid 3,591,601L (948,748 gal) Solid 9,062 m <sup>3</sup> (11,853 yd <sup>3</sup> )	Liquid 3,250,725L (858,698 gal) Solid 9,058 m <sup>3</sup> (11,848 yd <sup>3</sup> )	Liquid 4,032,034L (1,065,100 gal) Solid 9,237 m <sup>3</sup> (12,082 yd <sup>3</sup> )
			These increases could be partially offset by reductions due to the phase-out of existing HEU storage operations and facilities. Adequate waste management capacity exists to support the expected waste volumes.	These increases could be partially offset by reductions due to the phase-out of existing HEU storage operations and facilities. Adequate waste management capacity exists to support the expected waste volumes.	These increases could be partially offset by reductions due to the phase-out of existing Special Materials operations and facilities. Adequate waste management capacity exists to support the expected waste volumes.	These increases could be partially offset by reductions due to the phase-out of existing HEU storage and Special Materials operations and facilities. Adequate waste management capacity exists to support the expected waste volumes.

TABLE 3.5–1.—Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives [Page 22 of 30]

	Alternative 1		Alternative 2		Alternative 3	Alternative 4
Resource/ Material Categories	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
<b>Worker and Public Health</b>						
<u>Construction:</u>	Nonfatal occupational injury/illness rate (per 100 workers) 4-year average is 8.58. Total number of injuries/illnesses calculated for a Y-12 worker population of 5,105 under No Action - Status Quo Alternative is 438 per year.	Construction of the EMWMF and activities associated with the Field Research Center would be expected to result in approximately 9 additional non-fatal occupational injuries/illnesses per year during construction.	Construction of the HEU Materials Facility would be expected to result in approximately 3 additional non-fatal occupational injuries/illnesses per year during the 4-year construction period.  <b>Total with No Action - Planning Basis Operations Alternative: 12 additional nonfatal injuries/illnesses per year during construction.</b>	Construction of the Building 9215 storage expansions would be expected to result in approximately 3 additional non-fatal occupational injuries/illnesses per year during the 4-year construction period.  <b>Total with No Action - Planning Basis Operations Alternative: 12 additional nonfatal injuries/illnesses per year during construction.</b>	Construction of the Special Materials Complex would be expected to result in approximately 3 additional non-fatal injuries/illnesses per year during the 3.5-year construction period.  <b>Total with No Action - Planning Basis Operations Alternative: 12 additional nonfatal injuries/illnesses per year during construction.</b>	Construction activities would result in approximately 16 additional nonfatal injuries/illnesses per year during construction under this alternative.  <b>Total with No Action - Planning Basis Operations Alternative: 15 additional nonfatal injuries/illnesses per year during construction.</b>

TABLE 3.5–1.—*Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives* [Page 23 of 30]

Resource/ Material Categories	Alternative 1		Alternative 2		Alternative 3	Alternative 4
	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
<u>Operation:</u>	<p>Nonfatal occupational injury/illness rate (per 100 workers) 4-year average is 8.58. Total number of injuries/illnesses calculated for a Y-12 worker population of 5,105 under No Action - Status Quo Alternative is 438.</p> <p>No change in the annual average dose to workers of 8.0 mrem. LCF's per year of exposure would be 0.016. HEU storage operations worker dose of 21 mrem (0.0003 LCF's).</p>	<p>The estimated total number of non-fatal occupational injuries/illnesses per year for the Y-12 workforce (5,128) is 440.</p> <p>The annual average dose to workers would increase by 3.6 mrem to 11.6 mrem. The estimated number of LCFs per year of exposure would increase to 0.024.</p>	<p>The estimated total number of nonfatal occupational injuries/illnesses per year for the Y-12 workforce would be 440.</p> <p>The annual average dose to Y-12 workers would be the same as No Action - Planning Basis Operations Alternative (11.6 mrem) an increase of 3.6 mrem from No Action - Status Quo Alternative. The estimated number of LCFs would be 0.024 per year.</p> <p>For the HEU Materials Facility normal operations the worker dose would be 21 mrem. The estimated number of LCFs would decrease from 0.0003 for No Action - Status Quo Alternative HEU storage operations to 0.0001 under this alternative.</p>	<p>The estimated total number of nonfatal occupational injuries/illnesses per year for the Y-12 workforce would be 440.</p> <p>The annual average dose to Y-12 workers would be the same as No Action - Planning Basis Operations Alternative (11.6 mrem) an increase of 3.6 mrem from No Action - Status Quo Alternative. The estimated number of LCFs would be 0.024 per year.</p> <p>For Building 9215 storage expansion normal operations, the worker dose would be 21 mrem. The estimated number of LCFs would decrease from 0.0003 for No Action - Status Quo Alternative to 0.0001 under this alternative HEU storage operations.</p>	<p>The estimated total number of nonfatal occupational injuries/illnesses per year for the Y-12 workforce would be 440.</p> <p>The annual average dose to Y-12 workers would be the same as No Action - Planning Basis Operations Alternative (11.6 mrem) an increase of 3.6 mrem from No Action - Status Quo Alternative. The estimated number of LCFs would be 0.024 per year.</p>	<p>The estimated total number of nonfatal occupational injuries/illnesses per year would be 440.</p> <p>The annual average worker dose to all Y-12 workers would increase from 8.0 mrem under No Action - Status Quo Alternative to 11.6 mrem under this alternative. The estimated number of LCFs per years of exposure would increase to 0.024 from 0.016 (No Action - Status Quo Alternative).</p>

TABLE 3.5–1.—Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives [Page 24 of 30]

Resource/ Material Categories	Alternative 1		Alternative 2		Alternative 3	Alternative 4
	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
			The one-time transfer of stored HEU to the new HEU Materials Facility would result in a worker dose of 150 mrem to the 35 involved workers. The estimated number of LCFs is 0.002.	The one-time transfer of stored HEU to the new Building 9215 expansion would result in a worker dose of 150 mrem to the 35 involved workers. The estimated number of LCFs is 0.002.		This one-time transfer of stored HEU to the new HEU Materials Facility would result in a worker dose of 150 mrem to the 35 involved workers. The estimated number of LCFs is 0.002.
	The MEI dose is 0.53 mrem/yr. The estimated number of LCF's is $2.65 \times 10^{-7}$ .	The MEI dose would increase by 3.97 mrem/yr to 4.5 mrem/yr. The estimated number of LCFs per year of exposure would increase by $1.985 \times 10^{-6}$ to $2.25 \times 10^{-6}$ .	The MEI dose would not change from the 4.5 mrem/yr under No Action - Planning Basis Operations Alternative (this would be an increase of 3.97 mrem/yr from the 0.53 mrem/yr under No Action - Status Quo Alternative).	The MEI dose would not change from the 4.5 mrem/yr under No Action - Planning Basis Operations Alternative (this would be an increase of 3.97 mrem/yr from the 0.53 mrem/yr under No Action - Status Quo Alternative).	The MEI dose would not change from the 4.5 mrem/yr under No Action - Planning Basis Operations Alternative (this would be an increase of 3.97 mrem/yr from the 0.53 mrem/yr under No Action - Status Quo Alternative).	The MEI dose would increase by 3.97 mrem/yr from 0.53 mrem/yr under No Action - Status Quo Alternative to 4.5 mrem/yr under this alternative. The estimated number of LCFs per year of exposure would increase by 0.0158 from 0.0002 (No Action- Status Quo Alternative) to 0.016.
	The 80 km (50 mi) population dose is 4.3 person-rem/yr. The estimated number of LCF's is $2.15 \times 10^{-6}$ .	The 80 km (50 mi) population dose would increase by 29.4 person-rem/yr to 33.7 person-rem/yr. The estimated number of LCFs per year of exposure would increase by $1.75 \times 10^{-5}$ to $1.69 \times 10^{-5}$ .	The 80 km (50 mi) population dose would not change from the 33.7 person-rem/yr under No Action - Planning Basis Operations Alternative (this would be an increase of 29.4 person-rem/yr under No Action - Status Quo Alternative).	The 80 km (50 mi) population dose would not change from the 33.7 person-rem/yr under No Action - Planning Basis Operations Alternative (this would be an increase from of 29.4 person-rem/yr under No Action - Status Quo Alternative).	The 80 km (50 mi) population dose would not change from the 33.7 person-rem/yr under No Action - Planning Basis Operations Alternative (this would be an increase from of 29.4 person-rem/yr under No Action - Status Quo Alternative).	The 80 km (50 mi) population dose would increase by 29.4 person-rem/yr from 4.3 person-rem/yr under No Action - Status Quo Alternative to 33.7 person-rem/yr under this alternative. The estimated number of LCFs per year would increase by 0.0168 from 0.0002 (No Action - Status Quo) to 0.017.



**TABLE 3.5–1.—Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives [Page 25 of 30]**

Resource/ Material Categories	Alternative 1		Alternative 2		Alternative 3	Alternative 4
	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
<b>Environmental Justice</b>						
<u>Operation:</u>	Routine operations pose no significant health risks or adverse socioeconomic impacts to the public; no disproportionately high and or adverse effects on minority or low-income populations.	Routine operations would pose no significant health risks or adverse socioeconomic impacts to the public under this alternative; therefore no disproportionately high or adverse effects on minority or low-income populations is expected.	Routine operations would pose no significant health risks or adverse socioeconomic impacts to the public under this alternative; therefore no disproportionately high or adverse effects on minority or low-income populations is expected.	Routine operations would pose no significant health risks or adverse socioeconomic impacts to the public under this alternative; therefore no disproportionately high or adverse effects on minority or low-income populations is expected.	Routine operations would pose no significant health risks or adverse socioeconomic impacts to the public under this alternative; therefore no disproportionately high or adverse effects on minority or low-income populations is expected.	Routine operations would pose no significant health risks or adverse socioeconomic impacts to the public under this alternative; therefore no disproportionately high or adverse effects on minority or low-income populations is expected.

TABLE 3.5–1.—Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives [Page 26 of 30]

	Alternative 1		Alternative 2		Alternative 3	Alternative 4
Resource/ Material Categories	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
<b>Facility Accidents</b>						
<i>Operation:</i> (Radiological):	<b>Beyond Design-Basis Earthquake Accident:</b>	<b>Beyond Design-Basis Earthquake Accident:</b>	<b>Beyond Design-Basis Earthquake Accident:</b>	<b>Beyond Design-Basis Earthquake Accident:</b>	<b>Beyond Design-Basis Earthquake Accident:</b>	<b>Beyond Design-Basis Earthquake Accident:</b>
Dose and increased likelihood of a cancer fatality per year:	<u>Collocated Worker</u> Maximally Exposed Individual: Dose-30 rem LCF-0.012  Y-12 Plant Population: Dose-26,500 person-rem LCF-11	<u>Collocated Worker</u> Maximally Exposed Individual: Dose-30 rem LCF-0.012  Y-12 Plant Population: Dose-26,500 person-rem LCF-11	<u>Collocated Worker</u> Maximally Exposed Individual: Dose-30 rem LCF-0.012  Y-12 Plant Population: Dose-26,500 person-rem LCF-11	<u>Collocated Worker</u> Maximally Exposed Individual: Dose-30 rem LCF-0.012  Y-12 Plant Population: Dose-26,500 person-rem LCF-11	<u>Collocated Worker</u> Maximally Exposed Individual: Dose-30 rem LCF-0.012  Y-12 Plant Population: Dose-26,500 person-rem LCF-11	<u>Collocated Worker</u> Maximally Exposed Individual: Dose-30 rem LCF-0.012  Y-12 Plant Population: Dose-26,500 person-rem LCF-11
	<u>Public</u> Maximally Exposed Individual: Dose-17 rem LCF-0.008	<u>Public</u> Maximally Exposed Individual: Dose-17 rem LCF-0.008	<u>Public</u> Maximally Exposed Individual: Dose-17 rem LCF-0.008	<u>Public</u> Maximally Exposed Individual: Dose-17 rem LCF-0.008	<u>Public</u> Maximally Exposed Individual: Dose-17 rem LCF-0.008	<u>Public</u> Maximally Exposed Individual: Dose-17 rem LCF-0.008
	80km (50-mi) population: Dose-404 person-rem LCF-0.202	80km (50-mi) population: Dose-404 person-rem 0.202	80km (50-mi) population: Dose-404 person-rem LCF-0.202	80km (50-mi) population: Dose-404 person-rem LCF-0.202	80km (50-mi) population: Dose-404 person-rem LCF-0.202	80km (50-mi) population: Dose-404 person-rem LCF-0.202
			Likelihood of Beyond Design - Basis Earthquake Accident lower than Alternative 1A by approximately a factor of 5.	Likelihood of Beyond Design - Basis Earthquake Accident for the HEU Storage Mission lower than Alternative 1A by approximately factor of 5.		Likelihood of Beyond Design - Basis Earthquake Accident for the HEU Storage Mission lower than Alternative 1A by approximately factor of 5.

TABLE 3.5–1.—*Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives* [Page 27 of 30]

Resource/ Material Categories	Alternative 1		Alternative 2		Alternative 3	Alternative 4
	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
	<b>Criticality Accident:</b>	<b>Criticality Accident:</b>	<b>Criticality Accident:</b>	<b>Criticality Accident:</b>	<b>Criticality Accident:</b>	<b>Criticality Accident:</b>
	<u>Collocated Worker</u> Maximally exposed individual: Dose-8 rem LCF-4x10 <sup>-3</sup> Y-12 Plant Population: Dose-870 person-rem LCF-0.35	<u>Collocated Worker</u> Maximally exposed individual: Dose-8 rem LCF-4x10 <sup>-3</sup> Y-12 Plant Population: Dose-870 person-rem LCF-0.35	<u>Collocated Worker</u> Maximally exposed individual: Dose-8 rem LCF-4x10 <sup>-3</sup> Y-12 Plant Population: Dose-870 person-rem LCF-0.35	<u>Collocated Worker</u> Maximally exposed individual: Dose-8 rem LCF-4x10 <sup>-3</sup> Y-12 Plant Population: Dose-870 person-rem LCF-0.35	<u>Collocated Worker</u> Maximally exposed individual: Dose-8 rem LCF-4x10 <sup>-3</sup> Y-12 Plant Population: Dose-870 person-rem LCF-0.35	<u>Collocated Worker</u> Maximally exposed individual: Dose-8 rem LCF-4x10 <sup>-3</sup> Y-12 Plant Population: Dose-870 person-rem LCF-0.35
	<u>Public</u> Maximally Exposed Individual: Dose-3 rem LCF-1.5x10 <sup>-3</sup>	<u>Public</u> Maximally Exposed Individual: Dose-3 rem LCF-1.5x10 <sup>-3</sup>	<u>Public</u> Maximally Exposed Individual: Dose-3 rem LCF-1.5x10 <sup>-3</sup>	<u>Public</u> Maximally Exposed Individual: Dose-3 rem LCF-1.5x10 <sup>-3</sup>	<u>Public</u> Maximally Exposed Individual: Dose-3 rem LCF-1.5x10 <sup>-3</sup>	<u>Public</u> Maximally Exposed Individual: Dose-3 rem LCF-1.5x10 <sup>-3</sup>
	80km (50-mi) Population: Dose-8.6 person rem LCF-0.0043	80km (50-mi) Population: Dose-8.6 person rem LCF-0.0043	80km (50-mi) Population: Dose-8.6 person rem LCF-0.0043	80km (50-mi) Population: Dose-8.6 person rem LCF-0.0043	80km (50-mi) Population: Dose-8.6 person rem LCF-0.0043	80km (50-mi) Population: Dose-8.6 person rem LCF-0.0043
			Likelihood of criticality accident lower than Alternative 1A by approximately a factor of 2 to 5.	Likelihood of criticality accident lower than Alternative 1A by approximately a factor of 2 to 5.		Likelihood of criticality accident for the HEU Storage Mission lower than Alternative 1A by approximately a factor of 2 to 5.

TABLE 3.5–1.—Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives [Page 28 of 30]

	Alternative 1		Alternative 2		Alternative 3		Alternative 4
Resource/ Material Categories	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex	
	<b>Radiological Fire Accident:</b>	<b>Radiological Fire Accident:</b>	<b>Radiological Fire Accident:</b>	<b>Radiological Fire Accident:</b>	<b>Radiological Fire Accident:</b>	<b>Radiological Fire Accident:</b>	
	<u>Collocated Worker Maximally Exposed Individual:</u> Dose-0.01 to 41 rem LCF- $5 \times 10^{-6}$ to 0.02 Y-12 Plant Population: Dose-12 to 3,300 person/rem LCF-0.005 to 1.3	<u>Collocated Worker Maximally Exposed Individual:</u> Dose-0.01 to 41 rem LCF- $5 \times 10^{-6}$ to 0.02 Y-12 Plant Population: Dose-12 to 3,300 person/rem LCF-0.005 to 1.3	<u>Collocated Worker Maximally Exposed Individual:</u> Dose-0.01 to 41 rem LCF- $5 \times 10^{-6}$ to 0.02 Y-12 Plant Population: Dose-12 to 3,300 person/rem LCF-0.005 to 1.3	<u>Collocated Worker Maximally Exposed Individual:</u> Dose-0.01 to 41 rem LCF- $5 \times 10^{-6}$ to 0.02 Y-12 Plant Population: Dose-12 to 3,300 person/rem LCF-0.005 to 1.3	<u>Collocated Worker Maximally Exposed Individual:</u> Dose-0.01 to 41 rem LCF- $5 \times 10^{-6}$ to 0.02 Y-12 Plant Population: Dose-12 to 3,300 person/rem LCF-0.005 to 1.3	<u>Collocated Worker Maximally Exposed Individual:</u> Dose-0.01 to 41 rem LCF- $5 \times 10^{-6}$ to 0.02 Y-12 Plant Population: Dose-12 to 3,300 person/rem LCF-0.005 to 1.3	
	<u>Public Maximally Exposed Individual:</u> Dose-0.01 to 16 rem LCF- $5 \times 10^{-6}$ to 0.008 80km (50-mi) population: Dose-0.18 to 70 person/rem LCF- $9 \times 10^{-5}$ to 0.28	<u>Public Maximally Exposed Individual:</u> Dose-0.01 to 16 rem LCF- $5 \times 10^{-6}$ to 0.008 80km (50-mi) population: Dose-0.18 to 70 person/rem LCF- $9 \times 10^{-5}$ to 0.28	<u>Public Maximally Exposed Individual:</u> Dose-0.01 to 16 rem LCF- $5 \times 10^{-6}$ to 0.008 80km (50-mi) population: Dose-0.18 to 70 person/rem LCF- $9 \times 10^{-5}$ to 0.28	<u>Public Maximally Exposed Individual:</u> Dose-0.01 to 16 rem LCF- $5 \times 10^{-6}$ to 0.008 80km (50-mi) population: Dose-0.18 to 70 person/rem LCF- $9 \times 10^{-5}$ to 0.28	<u>Public Maximally Exposed Individual:</u> Dose-0.01 to 16 rem LCF- $5 \times 10^{-6}$ to 0.008 80km (50-mi) population: Dose-0.18 to 70 person/rem LCF- $9 \times 10^{-5}$ to 0.28	<u>Public Maximally Exposed Individual:</u> Dose-0.01 to 16 rem LCF- $5 \times 10^{-6}$ to 0.008 80km (50-mi) population: Dose-0.18 to 70 person/rem LCF- $9 \times 10^{-5}$ to 0.28	
			Likelihood of radiological fire accident lower than Alternative 1A by approximately a factor of 2 to 5.	Likelihood of radiological fire accident lower than Alternative 1A by approximately a factor of 2 to 5.		Likelihood of radiological fire accident for the HEU Storage Mission lower than Alternative 1A by approximately a factor of 2 to 5.	

TABLE 3.5–1.—*Summary of Environmental Consequences for the Y-12 Site-Wide Alternatives* [Page 29 of 30]

	Alternative 1		Alternative 2		Alternative 3	Alternative 4
Resource/ Material Categories	1A No Action - Status Quo Alternative	1B No Action - Planning Basis Operations Alternative	2A Alternative 1B Plus Construct and Operate New HEU Materials Facility	2B Alternative 1B Plus Upgrade Expansion to Building 9215	Alternative 1B Plus Construct and Operate New Special Materials Complex	Alternative 1B Plus HEU Materials Facility and Special Materials Complex
<i>Operation:</i> (Chemical)	<p><b>Fires involving chemicals:</b></p> <p>Potentially expose between 10 and 220 workers to ERPG-2 concentrations of toxic materials. No exposures are expected off-site</p> <p><b>Chemical release due to loss of containment:</b></p> <p>Potentially expose between 200 and 1,000 workers to ERPG-2 concentrations or greater. Except for chlorine, no toxic gas release is expected to reach the public occupied areas.</p> <p>A release of chlorine could expose up to 6,500 members of the public to ERPG-2 concentrations or greater.</p>	<p><b>Fires involving chemicals:</b></p> <p>Potentially expose between 10 and 220 workers to ERPG-2 concentrations of toxic materials. No exposures are expected off-site</p> <p><b>Chemical release due to loss of containment:</b></p> <p>Potentially expose between 200 and 1,000 workers to ERPG-2 concentrations or greater. Except for chlorine, no toxic gas release is expected to reach the public occupied areas.</p> <p>A release of chlorine could expose up to 6,500 members of the public to ERPG-2 concentrations or greater.</p>	No change from No Action - Status Quo Alternative or No Action - Planning Basis Operations Alternative.	No change from No Action - Status Quo Alternative or No Action - Planning Basis Operations Alternative.	<p>Likelihood of chemical accidents for the new Special Materials Complex lower than Alternative 1A by approximately a factor of 2 to 5.</p> <p>Operation of the Special Materials Facility at Site 1 would potentially increase the likelihood of exceeding ERPG-2 (or TEEL-2) concentrations at the Y-12 boundary.</p>	<p>Likelihood of chemical accidents for the Special Materials Mission lower by approximately factor of 2 to 5.</p> <p>Potential increase in the likelihood of exceeding ERPG-2 ( or TEEL-2) concentrations at the Y-12 boundary if Special Materials Complex is located at Site 1.</p>

Note: EMWMF - Environmental Management Waste Management Facility; SHPO - State Historic Preservation Officer.

### **3.6 PREFERRED ALTERNATIVE**

Council on Environmental Quality (CEQ) NEPA regulations require that an agency identify its preferred alternative, if one or more exists, in the Draft EIS (40 CFR 1502.14 [e]). As discussed in “Forty Most Asked Questions Concerning CEQ’s NEPA Regulations. (46 FR 18026, March 23, 1981 as amended), the preferred alternative is the alternative which the agency believes would fulfill its statutory missions and responsibilities giving consideration to economic, environmental, technical, and other factors. Consequently, to identify a preferred alternative, DOE is developing information on potential impacts, costs, technical risks, and schedule risks for the alternatives under consideration. This Draft Y-12 SWEIS provides information on the potential environmental impacts. Cost, schedule, and technical analyses are also being prepared and will be considered in the identification of preferred alternatives.

DOE’s preferred alternative (Alternative 4) is to construct and operate a new HEU Materials Facility and a new Special Materials Complex at Y-12. DOE has not yet identified a preferred site for these new facilities. The Final SWEIS will identify all preferred alternatives. The ROD will describe DOE’s decisions for the Y-12 SWEIS proposed actions.